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10/001,256	11/02/2001	Kazuaki Watanabe	U 013698-2	8327
7590		03/14/2007		
Ladas & Parry				
26 West 61 Street				
New York, NY 10023				
			EXAMINER	
			SHOSHO, CALLIE E	
			ART UNIT	PAPER NUMBER
			1714	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		03/14/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

**Application No.**

10/001,256

**Applicant(s)**

WATANABE ET AL.

**Examiner**

Callie E. Shosho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 4 and 5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4 and 5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

#### **Continued Examination Under 37 CFR 1.114**

1. A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 10/2/06 has been entered.

2. It is noted that in the amendment filed 10/2/06, applicants state that claim 4 has been rewritten in independent form including all the limitations of the base claim and all the intervening claims. However, it is noted that previously claim 4 required non-diene based sulfonyl-group containing (co)polymer while claim 4 has been rewritten in the amendment filed 10/2/06 to delete the phrase non-diene based.

#### **Claim Rejections - 35 USC § 112**

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 4-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites “acryl-based, sulfonyl group-containing (co)polymer”. The scope of the claim is confusing given that it is not clear what is meant by “acryl-based” or from what types of monomers the acryl-based, sulfonyl group-containing (co)polymer is obtained. Clarification is requested.

**Claim Rejections - 35 USC § 102**

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claim 4 is rejected under 35 U.S.C. 102(a) as being anticipated by WO 01/48100.

WO 01/48100<sup>1</sup> discloses ink jet ink comprising water, pigment, dispersant that includes acrylic polymer, acetylene glycol, i.e. corresponding to compound of presently claimed formula (1), triethylene glycol monobutyl ether, and fine polymer particles in the form of resin emulsion preferably obtained from monomers having sulfone group as well as unsaturated monomer such as alkyl (meth)acrylate, i.e. acryl-based sulfonyl group-containing polymer (col.1, lines 6-8,

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<sup>1</sup> It is noted that when utilizing WO 01/48100, the disclosures of the reference are based on Sano et al. (U.S. 6,924,327) which is an English language equivalent of the reference. Therefore, the column and line numbers cited with respect to WO 01/48100 are found in Sano et al.

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col.7, lines 1-2 and 27, col.9, lines 26-30, col.10, lines 8-9 and 56-58, col.11, lines 37-50, col.12, lines 1-5 and 44-45, and col.13, lines 11-45).

In light of the above, it is clear that WO 01/48100 anticipates the present claims.

**Claim Rejections - 35 USC § 103**

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/48100 in view of EP 892024.

The disclosure with respect to WO 01/48100 in paragraph 6 above is incorporated here by reference.

The difference between WO 01/48100 and the present claimed invention is the requirement in the claim of the acid number of the dispersant.

WO 01/48100 is silent with respect to the acid number of the dispersant.

EP 892024, which is drawn to ink jet ink, disclose the use of dispersant possessing acid number of not less than 100 in order that the ink produces better images and has higher color density and color bleeding is prevented (page 3, lines 43-46).

In light of the motivation for using dispersant with specific acid number disclosed by EP 892024 as described above, it therefore would have been obvious to one of ordinary skill in the art to use dispersant with such acid number in the ink of WO 01/48100 in order that the ink produces better images and has higher color density and color bleeding is prevented, and thereby arrive at the claimed invention.

10. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 11217525 in view of Sano et al. (U.S. 5,769,930).

JP 11217525 discloses ink jet ink comprising water, glycol ether, pigment, dispersant such as acrylic polymer, and polymer emulsion prepared by sulfonating polymer with sulfonating agent such as sulfuric acid or sulfuric anhydride. The polymer is obtained from 0.5%

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or more diene monomer and remainder other monomer such as alkyl (meth)acrylate and thus, it is clear that the polymer is acryl-based (abstract and paragraphs 5-7, 9-10, 12, 29-30, 39, and 42).

The difference between JP 11217525 and the present claimed invention is the requirement in the claims of penetrating agent.

Sano et al., which is drawn to ink jet ink, disclose the use of penetrating agent that is combination of acetylene glycol and triethylene glycol monobutyl ether in order to produce ink with necessary penetrating capacity, i.e. such that the ink has enhanced color properties and no color bleeding (col.8,line 62-col.9, line 4).

In light of the motivation for using combination of acetylene glycol and triethylene glycol monobutyl ether disclosed by Sano et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use combination of acetylene glycol and triethylene glycol monobutyl ether in the ink jet ink of JP 11217525 in order to produce ink with necessary penetrating capacity and thereby arrive at the claimed invention.

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 11217525 in view of Sano et al. as applied to claim 4 above, and further in view of EP 892024.

The difference between JP 11217525 in view of Sano et al. and the present claimed invention is the requirement in the claim of the acid number of the dispersant.

JP 11217525 is silent with respect to the acid number of the dispersant.

EP 892024, which is drawn to ink jet ink, disclose the use of dispersant possessing acid number of not less than 100 in order that the ink produces better images and has higher color density and color bleeding is prevented (page 3, lines 43-46).

In light of the motivation for using dispersant with specific acid number disclosed by EP 892024 as described above, it therefore would have been obvious to one of ordinary skill in the art to use dispersant with such acid number in the ink of JP 11217525 in order that the ink produces better images and has higher color density and color bleeding is prevented, and thereby arrive at the claimed invention.

12. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen et al. (U.S. 5,990,202) in view of Sano et al. (U.S. 5,769,930).

Nguyen et al. disclose ink jet ink comprising water, pigment, first polymer, i.e. durable core-shell polymer, that functions as a dispersant and is obtained from monomers including alkyl (meth)acrylate, and second polymer, i.e. primer core-shell polymer, obtained from sulfonyl group-containing monomer that is formed by emulsion polymerization. The second polymer includes acryl-based sulfonyl group-containing polymer such as hexyl acrylate/methyl methacrylate/sodium styrene sulfonate copolymer (col.1, lines 10-15, col.2, lines 55-63, col.3, lines 4-6 and 10-12, col.6, lines 12-52, col.7, lines 24-25, col.8, lines 19-24, col.8, lines 60-col.9, line 40, co.10, line 48-col.11, line 2, col.17, lines 28-37, col.20, line 65-col.21, line 6, col.21, lines 56-59, col.22, lines 2-6 and 39-52, col.23, lines 52-60, and col.24, line 7).

The difference between Nguyen et al. and the present claimed invention is the requirement in the claims of specific penetrating agent.

Nguyen et al. disclose the use of acetylene glycol, i.e. compound corresponding to presently claimed formula (1), and glycol ether solvent, however, there is no explicit disclosure



of the use of combination of acetylene glycol and triethylene glycol monobutyl ether as presently claimed.

Sano et al., which is drawn to ink jet ink, disclose the use of penetrating agent that is combination of acetylene glycol and triethylene glycol monobutyl ether in order to produce ink with necessary penetrating capacity, i.e. such that the ink has enhanced color properties and no color bleeding (col.8,line 62-col.9, line 4).

In light of the motivation for using combination of acetylene glycol and triethylene glycol monobutyl ether disclosed by Sano et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use combination of acetylene glycol and triethylene glycol monobutyl ether in the ink jet ink of Nguyen et al. in order to produce ink with necessary penetrating capacity and thereby arrive at the claimed invention.

13. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen et al. in view of Sano et al. as applied to claim 4 above, and further in view of EP 892024.

The difference between Nguyen et al. in view of Sano et al. and the present claimed invention is the requirement in the claim of the acid number of the dispersant.

Nguyen et al. is silent with respect to the acid number of the dispersant.

EP 892024, which is drawn to ink jet ink, disclose the use of dispersant possessing acid number of not less than 100 in order that the ink produces better images and has higher color density and color bleeding is prevented (page 3, lines 43-46).

In light of the motivation for using dispersant with specific acid number disclosed by EP 892024 as described above, it therefore would have been obvious to one of ordinary skill in the

art to use dispersant with such acid number in the ink of Nguyen et al. in order that the ink produces better images and has higher color density and color bleeding is prevented, and thereby arrive at the claimed invention.

14. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. (U.S. 6,916,862).

Ota et al. disclose ink jet ink comprising water, wetting agent that is acetylene glycol, i.e. compound corresponding to presently claimed formula (1), and pigment dispersion comprising pigment, dispersant, acetylene glycol, triethylene glycol monobutyl ether, and resin providing dispersability and/or fixability that is vinyl copolymer obtained from alkyl (meth)acrylate and sulfonic acid monomer, i.e. acryl-based sulfonyl group-containing polymer, that is prepared from emulsion polymerization(col.1, lines 11-13, col.4, lines 3-26, col.7, lines 27-29, col.10, lines 46-67, col.11, lines 49-50, col.12, lines 7-12, col.13, lines 15-19, col.14, lines 54-65, col.15, lines 58-61, col.16, lines 39-44 and 53-59, col.17, lines 20-21, col.19, lines 31-32, col.23, lines 42-47, col.23, line 65-col.24, line 4, and col.24, lines 16-37).

While Ota et al. fails to exemplify the presently claimed ink nor can the claimed ink be "clearly envisaged" from Ota et al. as required to meet the standard of anticipation (cf. MPEP 2131.03), nevertheless, in light of the overlap between the claimed ink and the ink disclosed by Ota et al., it is urged that it would have been within the bounds of routine experimentation, as well as the skill level of one of ordinary skill in the art, to use ink which is both disclosed by Ota et al. and encompassed within the scope of the present claims and thereby arrive at the claimed invention.

15. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. as applied to claim 4 above, and further in view of EP 892024.

The difference between Ota et al. and the present claimed invention is the requirement in the claim of the acid number of the dispersant.

Ota et al. is silent with respect to the acid number of the dispersant.

EP 892024, which is drawn to ink jet ink, disclose the use of dispersant such as acrylic polymer that possesses acid number of not less than 100 in order that the ink produces better images and has higher color density and color bleeding is prevented (page 3, lines 43-46 and 51-52 and 54).

In light of the motivation for using dispersant with specific acid number disclosed by EP 892024 as described above, it therefore would have been obvious to one of ordinary skill in the art to use dispersant with such acid number in the ink of Ota et al. in order that the ink produces better images and has higher color density and color bleeding is prevented, and thereby arrive at the claimed invention.

16. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurabayashi et al. (U.S. 6,790,878) in view of Sano et al. (U.S. 5,769,930).

Kurabayashi et al. disclose ink jet ink comprising water, pigment, dispersant that is, for instance, acrylic copolymer possessing acid number of 350, and resin encapsulating a coloring material wherein the resin is obtained from hydrophilic monomer such as sulfuric acid type monomer and hydrophobic monomer such as alkyl (meth)acrylate, i.e. acryl-based sulfonyl-

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group containing polymer, wherein the resin is obtained by emulsion polymerization (coo.1, lines 10-13, col.6, lines 6-14, 18-23, and 39-44, col.8, lines 1-5, 21, 24-26, and 43-44, and col.19, lines 35-40).

The difference between Kurabayashi et al. and the present claimed invention is the requirement in the claims of penetrating agent.

Sano et al., which is drawn to ink jet ink, disclose the use of penetrating agent that is combination of acetylene glycol and triethylene glycol monobutyl ether in order to produce ink with necessary penetrating capacity, i.e. such that the ink has enhanced color properties and no color bleeding (col.8,line 62-col.9, line 4).

In light of the motivation for using combination of acetylene glycol and triethylene glycol monobutyl ether disclosed by Sano et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use combination of acetylene glycol and triethylene glycol monobutyl ether in the ink jet ink of Kurabayashi et al. in order to produce ink with necessary penetrating capacity and thereby arrive at the claimed invention.

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Edwards et al. (U.S. 7,101,921) disclose composition including ink comprising aqueous medium, pigment, dispersant, and core-shell polymer obtained from polymers obtained from anionic monomer including those comprising sulfuric acid group. However, there is no disclosure or suggestion of ultra-penetrating agent as presently claimed.

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18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Callie E. Shosho  
Primary Examiner  
Art Unit 1714

CS  
3/11/07